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ABSTRACT

In 1999, the University of West Florida launched an online Instructional Technology master's program. Students enrolled in this online program can be divided into two groups: (1) "local" students who, for various reasons, prefer the online courses, and (2) students at a geographical distance. The purpose of this study was to identify factors influencing the satisfaction of these students with the online courses. A second purpose was to ascertain any difference in satisfaction levels between the two groups. The Biner instrument (1993) was modified to accommodate questions relating to online courses. Fifty-two respondents from a sample of 200 participants completed the online survey. The results indicated student satisfaction in online courses is influenced by three constructs: instructor variables, course management, and technical issues. The statistical analysis did not reveal significant differences in satisfaction between the two groups. However, when the researchers compared the differences in distribution of responses between the two groups, some interesting differences were found. (Contains 48 references.) (Author/AEF)

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Student Satisfaction in an Online Master's Degree Program in Instructional Technology

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Abstract

In 1999, the University of West Florida launched an online Instructional Technology master's program. Students enrolled in this online program can be divided into two groups: 1) "local" students who, for various reasons, prefer the online courses, and 2) students at a geographical distance. The purpose of this study was to identify factors influencing the satisfaction of these students with the online courses. A second purpose was to ascertain any difference in satisfaction levels between the two groups. The Biner instrument (1993) was modified to accommodate questions relating to online courses. Fifty-two respondents from a sample of 200 participants completed the online survey. The results indicated student satisfaction in online courses is influenced by three constructs: instructor variables, course management, and technical issues. The statistical analysis did not reveal significant differences in satisfaction between the two groups. However, when the researchers compared the differences in distribution of responses between the two groups, some interesting differences were found.

Introduction

Distance learning is defined as instruction where "students and teachers are separated by distance and sometimes by time" (Moore & Kearsley, 1996, p. 1). Many higher education institutions today are either offering online courses and degree programs or are planning such initiatives. In 1997-98, 34% of postsecondary educational institutions offered distance education courses and 20% planned on offering distance courses by 2000. Of these institutions, 77% indicated they used the Internet as one of many instructional delivery modes (National Center for Education Statistics [NCES], 1999). Many universities now offer a wide range of online courses and degree programs (Laws, 1996). For example, in 1994-95, 51% of postsecondary educational institutions in the U.S. offered more than ten distance education courses; only 4% did not offer this type of courses (NCES, 1998).

Enrollment in these courses has increased dramatically in the 1990s (Neeley, Niemi, & Ehrhard, 1998). In the academic year 1994-95, formal online student enrollment was 758,640 (NCES, 1998). By 1997-98, that number had increased to 1,661,100 (NCES, 1999). The growth in distance education is largely credited to the availability of technology-enhanced instruction (Hobbs & Christianson, 1997).

Historically, retention of distance learners has been problematic with dropout rates disproportionately high compared to traditional course settings (Richards & Ridley, 1997; Wetzel, Radtke, & Stern, 1994). A dropout rate of 30 to 50 percent was not uncommon (Moore & Kearsley, 1996). Students may experience feelings of isolation in distance courses compared to prior face-to-face educational experiences (Shaw & Polovina, 1999) because of limited contact with instructors and fellow students. The result of this isolation can be unfinished courses or degree programs (Keegan, 1990).

Student satisfaction in traditional learning environments has been overlooked in the past (Astin, 1993) and has not been explored sufficiently (DeBourgh, 1999; Navarro & Shoemaker, 2000). Student satisfaction has also not been given the proper attention in distance learning environments (Biner, Dean, & Mellinger, 1994). Many current distance learners are "non-traditional students"—adults who have important commitments such as raising a family and maintaining full-time employment (Richards & Ridley, 1997). Non-traditional learners may differ from traditional learners in reporting satisfying experiences. According to Donohue and Wong (1997), further research should be conducted to investigate causes of satisfaction in non-traditional students. Richards and Ridley (1997) also suggest further research is necessary to study factors affecting student enrollment and satisfaction.

Prior studies in classroom-based courses have shown there is a high correlation between student satisfaction and retention (Astin, 1993; Edwards & Waters, 1982). Studies in which distance learners were the target population have yielded similar results (Bailey et al., 1998).

Many studies comparing distance education to traditional face-to-face instruction have focused on factors such as attrition, effectiveness, locus of control, different media, and student achievement (Bailey, Bauman, & Lata, 1998; Navarro & Shoemaker, 2000; Richards & Ridley, 1997; Sankaran, Sankaran, & Bui, 2000; Schutte, 1996; White, 1999; Wideman & Owston, 1999). However, research comparing "local" distance learners (those who could attend on-campus classes) to students who are geographically "distant" is limited.

In August of 1999, the University of West Florida (UWF) launched an online Master of Education degree program in instructional technology. Faculty members who teach these online courses employ a full complement of tools and strategies. Students enrolled in this online program can be divided into two groups: 1) local students, and 2) students at a geographical distance. The purpose of this study was to identify factors influencing the satisfaction of these students with the online courses. A second purpose was to identify any difference in satisfaction levels between the two student groups.

Review of Literature

Student Satisfaction

Most college students spend considerable time, money, and effort in obtaining a quality education and perceive their postsecondary educational experiences as being of high value (Knox, Lindsay, & Kolb, 1993). Satisfaction is an important "intermediate outcome" (Astin, 1993, p. 278). Student satisfaction is important because it influences the student's level of motivation (Chute, Thompson, & Hancock, 1999; Donohue & Wong, 1997) which is an important psychological factor in student success (American Psychological Association [APA], 1997). Bean and Bradley (1986) found student satisfaction has a significant effect on performance. Conversely, performance does not affect student satisfaction. According to experts, satisfaction is a good predictor of academic success (Donohue & Wong, 1997) and retention (Astin, 1993; Edwards & Waters, 1982). Elliott (1999) notes postsecondary educational institutions must retain existing students in order to achieve the goal of maximum growth. Therefore, educational institutions must focus on student satisfaction in order to increase retention (Astin, 1993). A postsecondary educational institution may also use student satisfaction as one measure of its success (Knox et al., 1993).

Student satisfaction can be defined as the student's perception pertaining to the college experience and perceived value of the education received while attending an educational institution (Astin, 1993). However, a problem exists with measurement of this important outcome (Williams & Ceci, 1997). Course evaluations, which usually intend to measure the student's satisfaction with a course, may not be valid instruments. For example, in a study students rated the instructor's content knowledge based on perceptions of enthusiasm and on presentation style. They rated the course based on how much they thought they had learned, which did not actually correlate with the amount they had learned. The researchers also reported the overall course rating was strongly correlated with the final grade received in the course. Despite these problems, surveys administered to distance learners after a course has been completed can give evaluators valuable information pertaining to satisfactory or unsatisfactory aspects. In turn, this information can then be used to improve the course or program (Chute et al., 1999).

Distance Education

Many advantages and disadvantages exist for distance learners. A key advantage is convenience and flexibility for learners. This is particularly true for adults who must schedule coursework around family and career obligations. Distance education courses are often self-paced. With the use of asynchronous communication tools, learners have access to content, instructors and classmates at all hours (Belanger & Jordan, 2000). Another advantage for online learners is they have more time to reflect and formulate their responses in chat rooms or threaded discussions compared to learners in a classroom-based course (Moore & Kearsley, 1996). This particularly benefits students who may be reluctant to speak in a classroom setting.

Students with limited access to higher educational opportunities also benefit from distance education. Learners who live in remote or rural areas or who are restricted in mobility can access online courses. Others may need access to specialized courses, degree programs, or professional certificates not available in the area in which they live. Some students may not want to attend the local colleges or universities, and distance education gives them a choice of institutions to attend. Another advantage includes the increased access to experts in the field via telecommunications (Belanger & Jordan, 2000; Hara & Kling, 2000).

Disadvantages for the learners are loss of direct interaction with the instructor and possible loss of motivation to complete the course or program (Belanger & Jordan, 2000). When students are not familiar with the technology used in the course, it can be difficult for them to catch up with the rest of the group (Vrasidas & McIsaac, 1999). It can also be difficult to enable effective group collaboration and discussion. Access to resources such as the campus library can be problematic as well. In addition, the potential for disruptive technical problems is an important factor (Belanger & Jordan, 2000).

Software programs used to facilitate collaborative learning have been used successfully in online courses. Navarro (2000) reports many students are highly satisfied with online courses. Hiltz (1993) reports that communications software increased the quality of instruction, raised students' level of motivation due to greater access to instructors, and increased their satisfaction with outcomes. Powers, Davis, and Torrence (1999) also report high student satisfaction with their level of involvement in a graduate instructional technology course.

In a study by Bower and Kamata (2000), 84% of students indicated they were highly satisfied or satisfied with their online courses experience. Richards and Ridley (1997) found the majority of students who completed online courses were satisfied with their experiences and rated courses comparable to classroom-based course. In a study comparing an online and traditional introductory psychology course, researchers found students in the online course were satisfied with the course and rated the communication with the instructor as better than in a classroom-based course. However, the students in the classroom-based course indicated they were overall more satisfied than students in the online course (Maki, Maki, Patterson, & Whittaker, 2000).

Some studies have reported decreased student satisfaction in online courses. Online students have reported needing to work harder in an online course compared to a course in the traditional setting (Maki et al., 2000). Students have also reported anxiety, confusion, and frustration with online courses (Hara & Kling, 2000). Some students reported feeling isolated and they had problems overcoming the distance (Wegerif, 1998).

Factors Contributing to Student Satisfaction

In traditional settings, areas associated with student satisfaction are student characteristics, quality of relationships with faculty, curriculum and instruction, student life, support services, resources, and facilities. A study with undergraduate students

by Astin (1993) identified the following factors as most important: contact time with faculty members and administrators, availability of career advisors, student social life on campus, and overall relationships with faculty and administrators. Bean and Bradley (1986) concluded the best predictors of student satisfaction are academic integration, institutional fit, quality and usefulness of education, social life, and difficulty of program.

The instructor is the main predictor in course satisfaction (Finaly-Neumann, 1994; Williams & Ceci, 1997). Student satisfaction is highly correlated with the performance of the instructor, particularly with his or her availability and response time (DeBourgh, 1999; Hiltz, 1993). Instructors must be available if students have questions and must be flexible (Moore & Kearsley, 1996). The instructor not only becomes a facilitator of learning but also a motivator for the student.

The instructor's feedback is a key factor in satisfaction with the instructional environment (Finaly-Neumann, 1994). Feedback on assignments must be given in a timely manner to keep learners involved and motivated (Smith & Dillon, 1999). Communication must be on a regular basis (Mood, 1995). Otherwise, students can experience a great level of frustration (Hara & Kling, 2000). Distance learners can experience feelings of isolation, and high levels of frustration and anxiety if communication and interaction between the different parties are lacking (Mood, 1995).

Mood (1995) reports that course goals and objectives should be clearly communicated to the students at the beginning of the course. If students know what is expected of them, their levels of anxiety can be reduced. Instructors should encourage student participation, provide updated information, and monitor student progress. Students should also have opportunities to become self-directed learners and structure their own learning experiences (Wegerif, 1998).

Students must have access to reliable equipment (Belanger & Jordan, 2000). Students with limited access are at a considerable disadvantage to learners who have unlimited access (Wegerif, 1998). Access is one of the most important factors influencing student satisfaction (Bower & Kamata, 2000). Online learners must be familiar with the technology used in the course in order to be successful (Belanger & Jordan, 2000). Students who experience frustrations with technology in a course report lower satisfaction levels (Chong, 1998; Hara & Kling, 2000).

Navigational components are also important issues in the online environment. Learners should be able to move within the course Web site without getting lost (Aggarwal, 2000). Hyperlinks must work properly or students will experience frustration (Harrison, 1999).

Learning environments in which social interaction and collaboration are allowed and encouraged lead to positive learning outcomes (APA, 1997). Collaborative learning tools can improve student satisfaction in the online learning environment (Bonk, 1998; Gunawardena & Zittle, 1998). These tools allow for group work and immediate feedback. Students are able to share viewpoints and discuss them with one another in a virtual environment, thereby gaining insights and perspectives they otherwise would not have been exposed to. This type of environment allows for social interaction and creates meaningful, active learning experiences (Bonk, 1998).

Methodology

The University of West Florida was founded in 1963 and is located in the Florida Panhandle. The main campus is located in Pensacola, Florida. In 1993, the Fort Walton Beach campus was established approximately 50 miles east of Pensacola. The university offers many courses utilizing two modes of distance learning including online courses and interactive video courses.

Total university enrollment is approximately 9,000 students. In 2000-01, the university's total enrollment was 8,517 students. Graduate and doctoral students make up 16% of the student body. The College of Professional Studies has 791 masters and doctoral students (University of West Florida, 2001).

Sample

The sample used in this study was drawn from a pool of all graduate distance learners (507 students) at this university. The researchers decided to split the population in two groups: "local" and geographical "distant" students. Zip codes of students' residences were used to make the distinction between the two groups of students. A "local" student was defined as anyone with a zip code starting with "325". A "distant" student was defined as anyone with any other zip code. The use of this criteria resulted of a sample of 363 "local" and 144 "distant" students. A total of 100 students were randomly selected from each of the two groups.

Instrument

The Telecourse Evaluation Questionnaire (Biner, 1993) has a total of 42 questions. This instrument measures student attitudes toward televised distance education and addresses three factors: (1) instruction and instructor, (2) technology, and (3) course management. With permission, the researchers modified the survey to address issues related to the online environment and student satisfaction. In order to eliminate neutral responses, participants were asked to indicate their level of satisfaction on a 4-point Likert scale ranging from "1 = strongly disagree" to "4 = strongly agree." The researchers added several questions relating to general information such as age, major, final course grade, hours per week spent on the course, and Internet access issues. The researchers also added four open-ended questions, asking the most and least satisfying aspects of the course, reason for enrollment, and factors that could improve student satisfaction. Because this survey was significantly modified to adapt the technology used in Web-based courses, the researchers performed a reliability analysis after the data collection phase.

Data Collection

The online survey was constructed and uploaded to a server. A personalized e-mail was sent to the participants with instructions on accessing and completing the survey. The researchers provided participants with the purpose of the research, a statement addressing confidentiality and voluntary participation, and contact information of one of the researchers. Initially, the return rate was 21.5%. After six days, all participants were reminded via e-mail to complete the survey, which resulted in a final response rate of 26% (52 participants).

Data Analysis

The data was examined for statistical assumptions (e.g. sample size and missing data, linearity, multicollinearity, singularity, univariate and multivariate outliers). None of the cases had missing values. Each group was examined separately for outliers. Examination of the scatterplots revealed no univariate outliers. A Mahalanobis distance test, $\chi^2 = 22.46$ at $p < .001$, was performed and no multivariate outliers were detected. In order to examine for linearity, several bivariate scatterplots were generated and examined. All of the scatterplots revealed abnormalities between the variables due to the instrument being a 4-point Likert scale.

The Pearson correlation coefficients were examined in a correlation matrix in order to determine if multicollinearity existed. Many correlation coefficients exceeded .50 and the highest correlation coefficient detected in this matrix was .91. The collinearity diagnostic demonstrated variance proportions were below .64 and this leads to the conclusion that no multicollinearity existed between any of the dependent variables. Each dependent variable was an independent measure, therefore ruling out singularity.

A confirmatory factor analysis was performed to subtract factors relevant to student satisfaction as identified in the literature and to examine the construct validity of the satisfaction survey. The researchers expected six factors with high subscale loadings for the online course satisfaction survey. An initial examination of the data revealed eight dimensions which had eigenvalues greater than 1. The examination of the scree plot, however, indicated the instrument has only three components. The factor loadings on the instructor/instruction satisfaction dimension were satisfactory and explained 50.12% of variance. The other two components had several complex loadings. A possible explanation is students associated many of the course management aspects with instructional issues and the online learners might have associated technology aspects with factors outside the course. However, these results indicate the online course satisfaction survey is a true measure of satisfaction.

Descriptive measures were calculated for each item on the online course satisfaction survey. A *t*-test for independent samples with an alpha level of .05 was performed to determine if differences in responses between groups were statistically significant. The survey was then collapsed into six subscales: instructor, technology, course management, course Web site, interactivity, and general issues. Respondents' scores were summarized and divided by the number of questions in each of the subscales and a multivariate analysis of variance (MANOVA) was performed. Then, the subscales were collapsed again without dividing the computed scores in order to avoid losing variance and a MANOVA was performed a second time to detect statistically significant differences between the two groups. The data analysis also involved open coding of qualitative data generated with the use of open-ended questions.

Results and Discussion

The internal consistency reliability of the online course satisfaction survey was determined using the Cronbach alpha coefficient. The overall reliability of the modified instrument was high (.97).

General Survey Responses

Fifty-two students who had completed at least one online course responded to the Web-based survey. Of the respondents, 69% were female. The majority of learners were between 40 and 49 years of age. All but two respondents were Education majors. Most respondents (53.8%) lived within a 30-mile radius from a UWF campus. Twenty-one percent indicated they enroll only in distance learning courses.

Half of the participants had taken only one or two online courses at the time of completion of the survey. The participants spent an average of 12 hours per week working on course activities. The large majority of participants (86.5%) accessed the course materials from home.

Forty-six percent of the respondents indicated that they would have been able to take a course if it had not been offered online. When asked why they enrolled in an online course, the majority of participants indicated availability and degree requirements were the most important reasons, followed by convenience, and out-of-town travel during the semester. These findings are consistent with results of previous studies, in which students' reasons for enrolling in an online course were convenience, the ability to take a course which would otherwise not have been available to them, or fulfilling degree or certificate requirements (Bower & Kamata, 2000).

According to respondents, the three most satisfying aspects were acquisition or improvement of technology skills, instructor's support and responsiveness, and flexibility. The top two least satisfying aspects were lack of face-to-face contact with the instructor and students, and heavy workload. When asked what would increase satisfaction in the online course, several students responded that they could think of nothing, and they were satisfied and enjoyed the course. Some students indicated that the university should ensure students have the necessary computer skills before allowing them into online courses.

Overall online course experience

Eighty-four percent of respondents indicated they were satisfied with the online course. Fifty-six percent were more satisfied with the online course than with a classroom-based course, and 73.1% were satisfied with the course workload. Eighty-one percent stated they would enroll in another online course. Ninety percent were satisfied with their final grade, and 90% received a final grade of "B" or higher.

Ninety percent of respondents strongly agreed or agreed with positive statements about their satisfaction with aspects of online courses such as quality of lessons, instructor's content knowledge, opportunities to participate, reliability of the university's server, course registration procedures, and external hyperlinks used in the course. Satisfaction with the instructor, reliability of computer equipment, Internet connection, administrative issues, access to resources, and course web site was indicated by more than 80% of the respondents.

Less than 25% of respondents indicated dissatisfaction with instructor feedback and teaching methods, Internet communication tools, availability of course mentor, Web site's organizational structure, and personal familiarity of technology tools used in the course. However, 58% did not agree there was more interaction between all involved parties in the online course and 48% strongly disagreed or disagreed they participated more in the online course than in a traditional classroom setting. In addition, 31% were not satisfied with the effectiveness of communication in the online course.

Differences Between Local and Distant Learners

The "distant" group consisted of more females than the "local" group: 81% and 61% respectively. Of "local" learners, 90% lived within 30 miles from a university campus. None of the "distant" students lived closer than 31 miles to a campus and the majority of this group (52%) lived between 31 to 100 miles from a campus. In the "local" group, 13% indicated they only enrolled in distance education courses, whereas one third of individuals in the "distant" group were enrolled in only distance learning courses.

None of the "local" students had taken more than nine online courses. In comparison, 20% of "distant" students had taken more than nine of these courses. Almost two thirds of "distant" students and one third of "local" students would not have been able to take the course had it not been offered online. The majority of "local" students spent more time working on the course. Of "distant" students, 67% spent between one to ten hours per week working on the course, whereas 54.9 % of "local" students spent more than ten hours.

The majority of "local" learners (45.2%) did not experience difficulties accessing the Internet. In contrast, the majority of "distant" learners (42.9%) had problems between one to three times. Of students who answered what grade they had received in the course, only two students received a grade C. These two students were "distant" students. All other students received a grade B or better.

Overall online course experience

The statistical analysis revealed no statistically significant differences between the means of the two groups at the $p < .05$ level. The standard deviations are relatively minor. Variables with a correlation coefficient between .60 and .80 are considered to have a strong relationship, whereas variables with a correlation coefficient between .80 and 1.00 have a very strong relationship. In Group 1, there were six relationships with a correlation coefficient higher than .60; in Group 2, six relationships with a correlation coefficient above .60 and nine relationships above .80 were detected.

When the researchers compared the differences in distribution of responses by percentages ("strongly disagree" and "disagree" versus "agree" and "strongly disagree") between the two groups, some interesting differences were found. "Local" students were generally more satisfied than "distant" students with a few exceptions. "Distant" students disagreed far less with the statement there was more interaction between all involved parties in the online course.

The "distant" group was also more satisfied with the online course compared to a classroom-based course. The technology used in the course was more familiar to them and they were more satisfied with the use of threaded online discussions or forums. In addition, they were slightly less negative about the statement they participated more in the online course than in a traditional classroom setting and were slightly more satisfied with the instructor's use of various teaching methods and techniques.

In general, "local" students were more satisfied with the opportunities given to them by the instructor to participate in the course, the instructor's communication skills, and the instructor's organization and preparation. They also indicated the instructor made them feel more like they were part of the class and belonged, and they were more satisfied with the instructor's encouragement. They agreed more with the statement the Web site was consistent and well designed and their Internet service provider was reliable. Interestingly enough, they were slightly more satisfied with the university's role in helping them get started in the course and with the accessibility of departmental program personnel. The "local" students were also more satisfied with their final grade in the course and with the quality of the weekly lessons.

Conclusions

Students in online courses face a number of obstacles. Online students who are geographically distant would theoretically have more to overcome than those who live near the institution and have ready access to the instructor, peers, and physical campus resources such as the library and computing center. This study found no statistically significant levels of satisfaction between local learners and truly distant learners in online courses. Truly distant learners did not experience less satisfaction in their online courses. Perhaps they experience more satisfaction than one would expect because they are accustomed to the technology and the environment. Perhaps they have extra motivation because they have no choice: they would not otherwise be

able to take the required courses for their program of study and are therefore content with the online environment. The only alternative would be driving long distances to physical campuses to have the educational opportunities their local counterparts take for granted. This issue certainly requires further investigation.

Interesting conclusions we might draw from learners' responses to the open-ended questions are that the university should consider more preparation of students for online environment. This could be in the form of policies and procedures, orientations, and checklists of required equipment and skills. One thing an institution can provide for its distance learners is a handbook for distance students with basic institutional information, policies and procedures, and technological skills and requirements (Hardy, 1999). This is particularly important for learners who are being introduced to the online learning environment. Many of the respondents in this study had completed only one online course.

According to the participants in this study, the limited face-to-face interaction was a drawback. Perhaps it would benefit the students to schedule an in-person meeting at the beginning of the course, even though it would be potentially inconvenient for students. Because limited face-to-face contact was the most frequently cited issue that limited satisfaction, a one-time meeting and orientation for all class participants could address this problem.

One recommendation for further research is the investigation of differences in satisfaction between students who are enrolled strictly in online courses and others who take a mixture of Web-based and classroom-based courses. The sample in this study was not large enough to perform a statistical analysis because only 11 students were true distance learners. A small sample size such as this could be used for an in-depth case study with structured interviews.

Moore and Kearsley (1996) warn student satisfaction is not correlated with actual student achievement. However, the fact that satisfaction is a contributing factor in motivation, which, in turn, is a predicting factor of student success, is reason enough to be concerned about the levels of satisfaction students experience in online courses and degree programs. The increase in numbers of online courses offered at postsecondary institutions and the rising enrollment in these courses and programs should encourage researchers to investigate student satisfaction.

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